

# Supplementary Document

## 1. Data used in the calibration

The data used in calibration was presented in details in [1], [2] and [3]. From the diagrams presented in the above-mentioned publications, the values of deflection of geosynthetic reinforcement between the columns were read. The data used for calibration is shown below in Tables 1-5. At the edge of the columns ( $L/2$ ;  $L$  - clear distance between adjacent columns [m]), zero displacement of the reinforcement was assumed.

### 1.1. Cases of $k=0$ (no support by subsoil)

**Table 1.** Measurements of reinforcement displacements based on the K2 test data presented in [2]

Distance from the center between columns [m]	Displacement [m]
0.025	-0.0325
0.0972	-0.0319
$L/2$ <sup>1</sup>	0

<sup>1</sup>  $L$  – clear distance between adjacent columns [m]

**Table 2.** Measurements of reinforcement displacements based on the T3 test data presented in [2]

Distance from the center between columns [m]	Displacement [m]
0	-0.03617
0.1243	-0.0325
$L/2$	0

**Table 3.** Measurements of reinforcement displacements in test C based on data presented in [1]

<b>Distance from the center between columns [m]</b>	<b>Displacement C_L [m]</b>	<b>Displacement C_R [m]</b>
0	-0.0550	-0.0550
0.005	-0.0550	-0.0550
0.010	-0.0550	-0.0550
0.015	-0.0550	-0.0550
0.020	-0.0550	-0.0550
0.025	-0.0549	-0.0549
0.030	-0.0543	-0.0543
0.035	-0.0541	-0.0541
0.040	-0.0540	-0.0540
0.045	-0.0539	-0.0533
0.050	-0.0538	-0.0529
0.055	-0.0535	-0.0529
0.060	-0.0532	-0.0528
0.065	-0.0530	-0.0528
0.070	-0.0528	-0.0522
0.075	-0.0525	-0.0515
0.080	-0.0520	-0.0512
0.085	-0.0516	-0.0511
0.090	-0.0511	-0.0507
0.095	-0.0508	-0.0500
0.100	-0.0505	-0.0490
0.105	-0.0500	-0.0488
0.110	-0.0496	-0.0475
0.115	-0.0488	-0.0460
0.120	-0.0484	-0.0450
0.125	-0.0480	-0.0440
0.130	-0.0476	-0.0430
0.135	-0.0471	-0.0420
0.140	-0.0462	-0.0400
0.145	-0.0451	-0.0380
0.150	-0.0440	-0.0369
0.155	-0.0430	-0.0352
0.160	-0.0420	-0.0345
0.165	-0.0410	-0.0330
0.170	-0.0393	-0.0310
0.175	-0.0375	-0.0275
0.180	-0.0340	-0.0247
0.185	-0.0320	-0.0225
0.190	-0.0300	-0.0205
0.195	-0.0280	-0.0190
0.200	-0.0248	-0.0172
0.205	-0.0220	-0.0120
0.210	-0.0145	-0.0073
0.215	-0.0080	-0.0040

## 1.2. Significant soil support cases

**Table 4.** Measurements of reinforcement displacements in case of plot 3R based on data presented in [3]

Day from installation of reinforcement	Distance from the center between columns [m]	Displacement [m]
9	0.7	-0.0056
	0.5	-0.0059
	0	-0.0044
16	0.7	-0.0298
	0.5	-0.0319
	0	-0.0269
23	0.7	-0.0401
	0.5	-0.0400
	0	-0.0378
31	0.7	-0.0486
	0.5	-0.0492
	0	-0.0458
49	0.7	-0.0544
	0.5	-0.0541
	0	-0.0477
94	0.7	-0.0606
	0.5	-0.0593
	0	-0.0543
138	0.7	-0.0644
	0.5	-0.0622
	0	-0.0576

**Table 5.** Measurements of reinforcement displacements in case of plot 4R based on data presented in [3]

Day from installation of reinforcement	Distance from the center between columns [m]	Displacement [m]
9	0.7	-0.0030
	0.5	-0.0031
	0	-0.0022
16	0.7	-0.0400
	0.5	-0.0416
	0	-0.0428
23	0.7	-0.0444
	0.5	-0.0476
	0	-0.0476
31	0.7	-0.0481
	0.5	-0.0511
	0	-0.0518
49	0.7	-0.0530
	0.5	-0.0548
	0	-0.0562
94	0.7	-0.0563
	0.5	-0.0578
	0	-0.0607
138	0.7	-0.0611
	0.5	-0.0614
	0	-0.0651

## References

1. Van Eekelen, S.J.M., Lodder, H.J., Bezuijen, A. Load distribution on the geosynthetic reinforcement within a piled embankment. In Proceedings of the 15th European Conference on Soil Mechanics and Geotechnical Engineering, Athens, Greece 2011; Anagnostopoulos, A., Pachakis, M., Tsatsanifos, Ch., Eds.; IOS Press: Amsterdam, The Netherlands, 2011, pp. 1137-1142.
2. Van Eekelen, S. J. M. Basal Reinforced Piled Embankments. PhD. Thesis, Technical University of Delft, Delft, The Netherlands, 2015.
3. Briançon, L., Simon, B. Performance of Pile-Supported Embankment over Soft Soil: Full-Scale Experiment. *J. Geotech. Geoenviron. Eng.* **2012**, *138*(4), pp. 551-561, DOI: [10.1061/\(ASCE\)GT.1943-5606.0000561](https://doi.org/10.1061/(ASCE)GT.1943-5606.0000561).